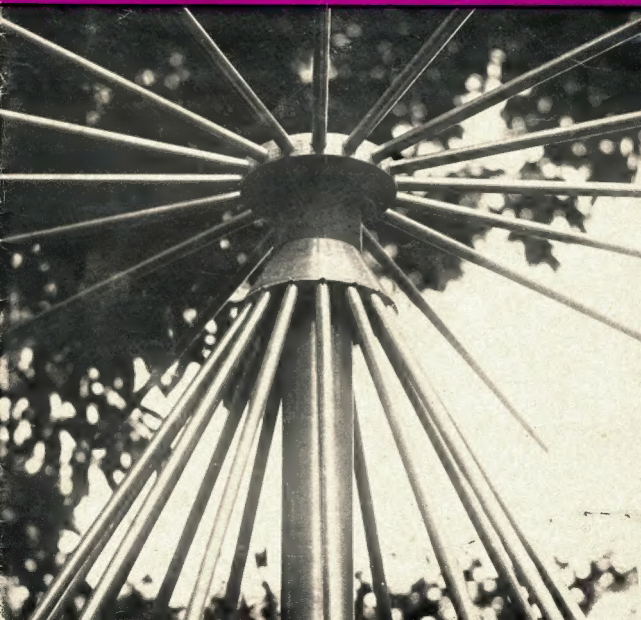


# amateur radio

APRIL, 1973

Registered at G.P.O. Melbourne for  
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Category "B"

Price 40 Cents





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Declibel: -10 to 20

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Battery used: UM3

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With internal bat-

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DC volts: 12, 60, 120, 360, 600, 1200 (100 o.p.v.).

DC current: 12 uA, 5 mA, 40 mA, 300

mA, 12 amps. Resistance (ohms): 2K, 20K, 200K,

2000, dB scale: minus 20 to plus 62 dB. Audio

output (volts AC): 6, 30, 120, 300, 500, 1200.

Battery: internal. Approx. size: 7 1/2 x 5 1/2 x 1 1/2

inches.

MODEL OL-64D Price \$18.75

20,000 ohms per volt. DC volts: 0.025, 1, 10, 50,

250, 500, 1000 (at 20K o.p.v.), 5000 (at 10K o.p.v.).

AC volts: 10, 50, 250, 1000 (at 4K o.p.v.). DC

current: 50 uA, 1 mA, 5 mA, 50 mA, 10 amps.

Resistance (ohms): 4K, 40K, 4M, 40 megohms,

dB scale: minus 20 to plus 36 dB. Capacitance:

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Size: 5 1/4 x 4 1/4 x 1 1/4 inches.

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250, 1000 (1000 o.p.v.). DC current: 1 mA, 100

mA. Resistance (ohms): 150K, dB scale: minus

20 to plus 22 dB. Dimensions: 4 1/4 x 3 1/4 x 1 1/4

inches.

MODEL CT-500/P Price \$16.75

Popular, medium-size, mirror scale, over-loaded

protected. AC volts: 10, 50, 250, 500, 1000 (10K

o.p.v.). DC volts: 2.5, 10, 50, 250, 500, 1000

o.p.v.). DC current: 50 uA, 5 mA, 50 mA, 500 mA.

Resistance (ohms): 12K, 120K, 1.2M, 12M, dB

scale: minus 20 to plus 62 dB. Approx. size: 5 1/2

x 3 1/2 x 1 1/4 inches.

MODEL A-10/P Price \$55.00

Giant 6 1/2 inch meter. In-built signal injector,

overload protected.

AC volts: 2.5, 10, 50, 250, 500, 1000 (10K o.p.v.).

DC volts: 0.2, 1, 10, 50, 250, 500, 1000 (10K

o.p.v.), 5000 (10K o.p.v.). DC current: 50 uA,

1 mA, 50 mA, 250 mA, 1 amp., 10 amps. AC

current: 1 amp., 10 amps. Resistance (ohms):

10K, 100K, 1M, 1000K, dB scale: minus 20 to

plus 62 dB. Signal injector: Blocking oscillator

circuit with a 2SA102 transistor. Approx. size:

6 1/2 x 7 1/4 x 3 1/4 inches.



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# amateur radio

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA. FOUNDED 1910



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### COVER

This close-up photograph of the discone antenna built by Tom Moffat, VK3AQV, clearly shows the high standard of workmanship employed.

See article on page 3.



# QSP

## CHANGE

At the Federal Convention held at Easter 1969, I was asked to accept the position of Federal President. I did so with considerable trepidation, far more trepidation than I believe I have ever admitted in public. That was four years ago. In these last four years there has been far greater change in our Federal body than I for one anticipated.

This issue of Amateur Radio marks yet another stage in our development. For the first time since 1948 this issue is not being printed by the Richmond Chronicle. Because of indifferent health our great friend Ron Higginbotham, VK3RN will be unable to devote, in the future, the time he has devoted to the preparation of the magazine in the past. We leave the Richmond Chronicle on the best of possible terms. We leave them grateful for all they have done in the past and with an awareness of the great deal we owe, in particular, to Ron.

This issue is printed for the first time by Research Publications Pty. Ltd. We believe that the facilities of this printer will enable us to continue to improve the magazine. Over the months ahead the Publications Committee hopes to take advantage of these facilities, and I am sure, you will find improvements gradually introduced. The Executive is advised by the Publications Committee that this change is in the financial and long term interests of the Institute.

This then is the first QSP to be published with this magazine being printed by a new organisation. It is also the last QSP that I shall be writing as Federal President. I have advised the Federal Council of my decision that I

will be unavailable for re-appointment to the Executive at this month's Easter Federal Convention. I have reached this decision with considerable regret, but I believe that my other commitments, particularly in relation to my work, have now made it impossible for me to devote the time that is necessary to perform the functions of President — at least to my own satisfaction.

I see the immediate future as a period of consolidating the various changes that we have adopted and also a period of some re-appraisal. I believe, however, that given good will, and an acceptance on the part of all of us of the responsibilities that must go with an expanding and influential organisation, the future is bright indeed.

Of all the things that I have attempted to do over the past four years I have regarded the most important as the task of bringing the Executive into contact with as many members in each Division as possible. To this end I have travelled widely and I imagine that I have met more amateurs in more places than most of my predecessors. I hope that I have succeeded in this task to some small extent. The interest and friendliness with which I have been met is something that I would wish to acknowledge.

I am tempted, in this my final QSP, to offer some comment which, one might hope, may contain some grain of wisdom or truth. Putting this temptation aside, all I wish to say is, thank you for the opportunity you have given me to take some part in the affairs of amateur radio in Australia. I have regarded this as a privilege.

Michael J. Owen, VK3KI.  
Federal President.

### CHANGE OF PRINTER

Have you noticed that A.R. is late this month? That the magazine looks somewhat different? Perhaps some of the print seems smaller than usual? Stay with us. Minor problems, due to the change of printers, will be overcome in future issues.

### APOLOGIES

Apologies are due to Neil Town, VKANK for omitting to give him credit for his article and front cover photograph on "Emergency Operations" in the March issue.

### W.I.A. LOG BOOKS.

These are available from your Division or from the W.I.A. Victorian Division, P.O. Box 38, East Melbourne, Vic 3002. They are not available from Magpie through the Executive Office. The price is 30 cents each, postage paid and they are available in vertical or horizontal ruling.

### AN AUSTRALIAN REVIEW.

It can hardly be said that wireless telegraphy is either a new industry or a new commercial activity, yet in regarding its growth we cannot but note the fact that it is just at present becoming generally recognised not merely as an indispensable force, but as an industry of very great importance and unbounded potentialities. The Marconigraph, March 1912.

### SUBSCRIPTION RECEIPTS.

Some members have taken the Executive office to task for not issuing receipts for annual subscriptions. It is repeated for those who missed the message earlier last year — no receipts are issued unless specially requested. Imagine the staff required to write out 4000 to 5000 receipts, quite apart from banking and accounting for each subscription. It is also, of course, modern commercial practice, particularly with crossed cheques, that receipts are not issued unless demanded. Acknowledgements that subscriptions have been received are also not issued — 4000 x 7c = \$280.00.

### COLOR TV.

#### TIME-BASE INTERFERENCE.

If you are living where the noise created by almost any colour TV receiver sets up a racket such as to make weak signal reception on Top Band (150 MHz) almost impossible. Short Wave Mag Jan 73.

### 21GHZ OPERATIONS.

We have just been informed by the Ministry (P. & T.) that in view of the health hazard (due to UHF radiation) no amateur will be allowed to operate in the new 24,000-24,350 MHz band without first obtaining (their) permission. Short Wave Magazine Editorial Jan 1973.

### OSCAR 6

The satellite continues to function admirably. On Orbit 1700 the telemetry channel GB failed — this measures the 10 m/s to output power. The reason is unknown as yet, but no effect has been observed on the satellite's performance. By reason of approaching winter-time and the inherent lull in ionospheric activity the downlink signals are expected to improve greatly in the near future and are expected to be reduced. The project Australia Group remains ready to report as the project wellcome. They use 145.700 MHz FM for their communications if anyone in Melbourne would like to drop in on them.

### WHY NO A.R.?

"Dear Sir, Although the fees were paid last year not one copy of the magazine was received. Please rectify." Is it any wonder when the addresses of the letter and the mailing plate do not coincide? There must be a moral in this story, perhaps two morals. One — please write in if your A.R. fails to arrive within a reasonable delay period. Two — please advise address changes remembering that up to two more issues could be sent to your old address before the new mailing plate can enter the system.

### MEMBERSHIP MATTERS.

Members are reminded that the Executive of the W.I.A. and the Executive Office are not empowered, and do not in any way, interfere with membership affairs. This continues to be solely a Divisional responsibility. The Executive Office merely acts as a central agency to prepare and process subscriptions from data supplied by Divisions and keeps track of address and other changes through the centralised RDP system. It is from the latter that A.R. mailing plates are kept up to date.

### MEMBERSHIP CARDS.

Several members in VK3 have blamed the Executive office for failure to send a membership card immediately on receipt of the member's subscription. Members are reminded that membership cards are entirely a Division matter and any complaints on this subject should be directed to your Divisional office. Indeed all membership matters remain the responsibility of your Division except that address changes can be sent directly to the Executive Office for A.R. mailing purposes.

### DX ON OSCAR 6.

ZL1WB reports that many ZL's have now worked KX6 and activity in ZL is increasing. He has been copying RTTY from VK2WV, but to time writing and has not succeeded with a QSO. He's looking for VK3, 8 and 9 to complete worked all VK areas having already worked all ZL areas on phone and C.W. Colin, VK3ZJH has now topped 200 contacts through the satellite. (Continued on Page 20)

## STOP PRESS

Easter Federal Convention Venue  
now changed to Melbourne.



# THE DISCONE

## The do-almost-anything antenna

TOM MOFFATT VK3AQV



ALTHOUGH the discone has been around for a long time, it has not been much used in the amateur service. The discone was first seen during the Second World War, and thousands of them are in use around the world today mainly in aviation and military service. In this article VK3AQV describes an amateur version.

This rather strange looking antenna has the rare distinction of being able to operate efficiently over a ten-to-one frequency range, in all directions at once.

If one is made with a low frequency cut-off of 50 MHz, it will be usable on 52 MHz, 144 MHz, 432 MHz, and possibly on 1296 with some loss of efficiency (although 1296 hasn't yet been tried by the author). The discone has a flattened omni-directional radiation pattern, with vertical polarization. The flattening

means it has a small amount of gain, which averages about 2dB over a ground plane cut for a particular band.

As well as the amateur bands, of course, the discone works well on everything in between.

So when you don't feel like hamming, you can hook the discone up to the appropriate converter and listen to aircraft flying over, or country TV stations, or anything else within its frequency range. And another thing... with the discone you can spend all your hard-earned money on one piece of extra-good, ultra-low-loss coax, instead of running cheaper feedlines to a collection of groundplanes, one for each band.

So much for the good points... here are a few bad ones. Since the same antenna is used for all VHF bands, you can't listen on six while talking on two.

Another problem involves the rig itself: Its output has to be absolutely clean. Any harmonics, or "wonkies" of any kind will be radiated far and wide by the discone without discrimination. So every transmitter you connect to it should be equipped with a low pass or band pass filter, and be thoroughly checked to ensure its output is perfect. Having said all that we'll now try to explain how the discone works.

As you can see from the illustrations, the discone in its basic form consists of a disc on top, with a cone-shaped affair directly beneath it.

The centre of the coax connects to the disc, the braid goes to the cone.

The discone operates as a taper transformer to match the 50 ohm line impedance to 377 ohms, which is regarded as the nominal impedance of free space. Any dipole, groundplane, or beam does the same thing, but only over a narrow band of frequencies. If the frequency goes too high or too low, its terminal impedance changes wildly and it won't work. The discone attacks the problem in a different way. Its impedance varies from 50 ohms at the apex of the cone to a much higher figure at the bottom.

When a wave of a given frequency arrives at the apex via the coax, it travels out along the disc and cone until it reaches a point that represents 377 ohms.

Then it says goodbye to the antenna and heads off into space on its own!

Exactly where the 377 ohm point lies on the cone varies with frequency. High frequencies find it near the bottom.

So you can see that the physical size of the discone has a direct bearing on its lower cut-off frequency. As the frequency is adjusted downward the 377 ohm point eventually falls off the edge of the cone. This is where it stops working. The low frequency cut-off point occurs when the slant height of the cone, dimension B on the drawing, is  $\frac{1}{2}$  wavelength.

The upper frequency limit isn't so well defined. If the cone could be made with a sharp point its theoretical high cut-off frequency would be infinity. But it can't be made with a sharp point because the coax connection to the disc has to fit through the top. The best you

can do is make the top diameter of the cone equal to the diameter of the coax, about half an inch.

In practice, as the frequency is raised past about ten times the lower cut-off frequency, the radiation pattern begins displaying some minor lobes in the vertical plane, and the SWR gets worse and worse. But the antenna still works, after a fashion. As for the disc, its diameter isn't terribly critical. It simply provides a sort of inverted ground plane for the cone to work against. The disc diameter is usually specified at 70 per cent of a quarter wavelength at the design lower cut-off frequency.

The angle the cone makes with the disc affects the input impedance of the discone. A 60 degree angle represents 50 ohms. The distance between the cone and the disc also affects the input impedance somewhat. F7 or 30 ohms this distance should be 20 per cent of the top diameter of the cone. Now to summarize the design factors (see drawing). Dimension B, the cone slant height, is  $\frac{1}{2}$  wavelength at the lowest desired operating frequency. Dimension A, the disc diameter, is 70 per cent of dimension B.

Dimension C, the cone's top diameter, is as small as you can get it, remembering the coax has to fit through dimension D, the disc to cone distance, is 20 per cent of dimension C.

Let's see how this works out in a practical design: The most useful discone for the VHF

(Continued on Page 5)





# THE BARLOW-WADLEY XCR 30 MARK II RECEIVER



A most unusual continuous general coverage from 550 KHz to 30 MHz, portable communications receiver! It uses the Wadley loop principle, the same as in the well known DELTAHET and RACAL receivers. A genuine crystal controlled receiver with negligible drift over the entire frequency range. For test details reference is made to a review in the R5GB Bulletin Radio Communications for January 1973 pages 28 to 30.

## Specifications:

Frequency Coverage : 500 KHz to 30 MHz continuous.  
Frequency Scale Accuracy : Within 5 KHz at all frequencies.  
Retuning Accuracy : Within 1 KHz at all frequencies.  
Modes of Reception : A.M., L.S.B., U.S.B., and C.W.  
Selectivity : 5 KHz overall RF on A.M.  
2 KHz overall RF on S.S.B. and C.W.  
0.5 watt (150 Hz to 3 KHz)  
Audio Output : External phone socket provided (8 ohm max.)  
Frequency Stability : Will hold an A.M. transmission in tune indefinitely.  
Will hold an S.S.B. transmission on pitch for long periods of time.

Sensitivity : Antenna circuit thermal noise audible at all frequencies.  
Image Rejection : 50 dB on all movable image channels.  
60 dB and better on immovable.  
Antenna : Self contained whip antenna.  
External open wire socket and earth.  
Power Supply : 6 type "D" (1.5v) dry cells (9 volts)  
External power socket provided for 8 to 12 volts with internal regulation.  
Current Consumption : 20 mA equivalent.  
Weight : 4.14 Kg. (Including batteries) 10 lbs. 2 ozs.  
Dimensions : 292 (w) x 190 (h) x 90 (d) mm. (11 1/2" x 7 1/2" x 3 1/4")

**XCR 30 Mark II soon available for \$225 net, sales tax included.**

International monetary upheavals continue and all following prices of imported material are subject to changes, mostly upwards!

**YAesu MUSeN transceivers FT-101 \$660, FT-DX-560 \$525.  
FT-200 with FP-200 power supply \$450.**

### HY-GAIN ANTENNAS

TH3JP Junior Triband Beam, three elements, now only \$100  
TH6DX.. Master Triband Beam, six elements, only \$175  
14AVQ/WB 10-40 mx Vertical, self supporting .. only \$45  
18AVT/WB 10-80 mx Vertical, no guys required, only \$65  
Hy-Quad six element Cubical Quad, 10-20 mx, only \$130  
BN-86 Baluns, a few, only for beam purchasers, only \$18

### CDR ROTATORS with 220V. AC control-indicator units:

HAM-M heavy duty model, not \$165 anymore, but only \$130  
AR-22-R light weight model, never before such a cheap rotator with control unit .... only \$40

### KEN PRODUCTS

2 Watt output FM Transceivers, 144-148 MHz. with four sets of crystals on channels 144.48 + 144.8 and Channel "A" or "B" plus Repeater Channel 1 or 4, free crystal commitment if a Repeater Channel changes in frequency in future. Has the best and most sensitive receiver of them all \$150

### TUBES

6KD6 or 6JS6, \$5.00 each; 6HF5 or 6LQ6, \$8.00 each.

All prices are net, cash with orders, sales tax included in all cases, and subject to changes without prior notice. Freight, postage and insurance charges are extra.

**SIDEBAND ELECTRONICS ENGINEERING**

Proprietor: ARIE BLES

P.O. BOX 23, SPRINGWOOD, N.S.W., 2777

Phone Springwood (STD 047) 511-636

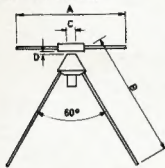


amateur would be a 52-144-432 model. Just to be on the safe side we'll make the lower cut-off frequency 50 instead of 52 MHz.

The first thing to work out is dimension B, the cone slant height.

By formula an electrical  $\frac{1}{4}$  wavelength is  $2952/f(\text{MHz})$  so  $2952/50$  equals 59 inches for dimension B. Dimension A, the disc diameter, is 70 per cent of dimension B, or 41.3 inches.

Dimension C, the top diameter of the cone, we will make  $\frac{1}{2}$  inch so  $\frac{1}{2}$  inch coax will match it. Dimension D, the disc to cone distance, is 20 per cent of C, or  $1/10$  inch.



ISOMETRIC & SPACE DIAGRAM

**CONSTRUCTION TECHNIQUES:** As you can see the 50 MHz disc is a monster standing nearly five feet high! If it were made of solid metal sheet the first gust of wind would send it flying into the neighbor's yard!

But there's a solution to that problem. Build it of pieces of tubing arranged to approximate the disc and cone shapes. If at least sixteen tubes are used for each, spaced evenly all

around, the loss of efficiency will be small. And the wind resistance will drop to almost nothing, and the disc is now lighter; the one at this shack weighs only  $5\frac{1}{2}$  pounds.

You now have to devise some way to hold all the pieces of tubing in their proper positions. The disc at this QTH uses a centre-piece machined out of a solid chunk of  $3\frac{1}{2}$  inch diameter aluminium bar. (See detail drawing.) Cut the cone sections to a 60 degree cone shape, and drill sixteen holes all around the edge and plug in the tubing.

The dimensions given refer to the distance from the edge of the cone to the apex, and the dull diameter of the disc. Keep this in mind when calculating the length of the tubing pieces. The tubes must be slightly shorter to compensate for the part of the disc and cone represented by the centre-piece.

Once the disc and the cone are made up it's necessary to join them together with some kind of insulator.

A good insulator can be made from one of the various casting resins, remembering it should have good electrical characteristics at VHF and UHF. One that has been used successfully is the pink "gop" they sell in hardware stores to plug holes in mufflers.

Another choice is clear casting resin sold in hobby shops. Ask for the resin used to encapsulate rare coins or dead bugs.

Once the disc is together drill a  $\frac{1}{2}$  inch hole from the bottom of the centre-piece right up through its central axis until it reaches the disc on top. Use a  $\frac{1}{8}$  inch drill to go the rest of the way through the disc.

Now prepare a piece of  $\frac{1}{2}$  inch brass welding rod by cutting a  $\frac{1}{4}$  inch thread on one end. Solder the other end to a suitable coax connector.

The rod is now run up through the centre of the disc until the coax connector is flush

with the bottom of the centre-piece. Drill and tap the holes and mount the connector, then run a nut on to the top of the brass rod until it is tight against the top of the cone. Be sure to waterproof the nut to prevent corrosion between the brass rod and the aluminium disc.

As you can see the  $\frac{1}{2}$  inch rod running through the half inch hole to the top approximates a piece of 50 ohm solid coax. Although it's a lot of trouble, doing it this way should help the disc's high frequency performance. All that's left to do now is find some way to mount the disc on the top of your tower.

At this QTH the centre-piece has a tail machined on the bottom. The tail plugs into a piece of aluminium pipe about  $1\frac{1}{4}$  inches in diameter and eight feet long. The coax runs down the centre of the pipe. The pipe is then clamped to the top of the tower with a "TV mast extension kit" available from TV mast suppliers.

## PERFORMANCE OF THE 50 Mhz DISCONE.

First some SWR readings: On 6 metres,  $2\frac{1}{2}$  to 1. It sounds a bit high but forget it. It works very nicely.

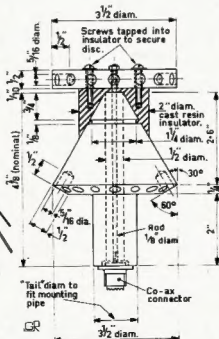
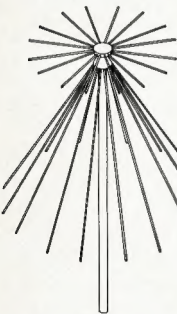
On 2 metres, 1.05 to 1. Obviously its best band. On 432, 2 to 1.

1296 ... not tried yet, as there's been no gear available to test it with.

On-air tests: On six, the discone transmits as well as a folded ground plane, with signals averaging 5 to 6 dB better. This is probably explained by the larger capture area.

On 432, the only test so far has been SWR with a borrowed transmitter. No two way contacts have been made due to a lack of 432 gear at this QTH. But now that the discone is up and operating, 432 operation is definitely on the cards, once some gear is built. At least the 432 antenna is finished!

13



HUB DETAILS



# VHF COMMUNICATIONS

A PUBLICATION FOR THE RADIO AMATEUR  
EST. 1969 VOL. 10 NO. 1 APRIL 1973 P. 1

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This is a West German publication in English for the Radio Amateur especially relating to v.h.f., u.h.f., and microwaves.

Issued quarterly (Feb., May, Aug., Nov.). Current subscriptions begin with the first issue of the year; there have been some delays but the postings should now be back to normal.

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H. L. HEPBURN,\* VK3AFQ

## THE CONTROL UNIT

The function of the control circuits is, in sequence to open the signal gate for the selected time period, to close it at the end of this time period, to generate buffered strobing pulses for the indicator decades and, finally, to generate a re-set pulse so that the whole cycle can start again.

Fig. 7 gives the waveforms encountered in the control section and their time relationship.

Fig. 4 gives the circuitry of the control section while Fig. 11 gives component layout.

Two 7473 dual JK flip flops are used to generate the various control pulses while three 7400 gates are used as buffer/inverters for the strobe pulses. This latter addition was necessary

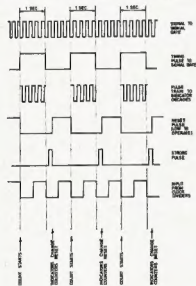


FIG. 7. WAVEFORMS

since the use of more than two indicator decades would overload the strobe output available from the 7473s.

## THE COUNTER DECADES

The function of each indicator decade is—in correct time sequence:—

- To accept input pulses and count up to 9 of them.
- To pass on to the next indicator decade a single pulse for each 10th pulse received.
- To store its own "count" as at the end of the counting period.
- At the command of the strobe pulse (see Fig. 7) to pass on to the seven segment incandescent indicator the count stored.

- (e) On receipt of a "clear" pulse from the control section (see Fig. 7) to re-set to zero and be ready for the next input pulse train.

Note that the indicators will continue to show the "count" set up as a result of step (d). This indicated count will remain on display until the next strobe pulse from the next count period causes the next "count" to be sent forward for display. This facility removes the "flickering" of the display which would result if the count was not stored, but passed straight through to the display.

Additional features of the decades described are provision for causing all indicator segments to be displayed on command to check for burnt out segments (lamp test) and provision for non significant zero suppression should this be required. There is also a decimal point display available.

Up to six indicator decades can be used in series to display up to six significant figures. It is recommended that six be used. However, if cost is a real consideration a minimum of three indicator decades can be used by sel-

action of the appropriate timing pulse. An explanation may assist here.

### For a Six Indicator Display

Assume an input frequency of 12.345678 MHz.

If a 1 millisecond (0.001 sec. or 1 k.p.s.) gating signal is used, then 12345 pulses will be counted in this period and the display will read 012345 (i.e. 012345 MHz.).

If the gating period is increased to 1.0 second, then 12345678 pulses will be counted. Since there are only six indicator decades, the "12" part will "spill out" of the left hand side of the display which will thus show "345678" Hz.

For a six-digit display then, it is only necessary to use a 1 second or a 1 millisecond gating time to display the whole of a signal having up to nine significant figures.

### For a Three Segment Display

Assume the same 12.345678 MHz input signal.

A 1 second gate pulse will pass 12345678 pulses forward for display.

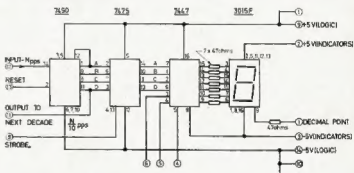


FIG. 6 DECADE COUNTING UNIT

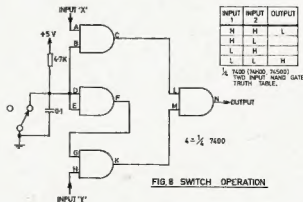


FIG. 8 SWITCH OPERATION



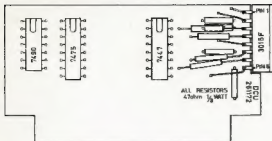


FIG. 9 DECADE LAYOUT



but only "678" Hz. will be on display, the "12345" part "spilling out" the left hand side as before.

A 1 millisecond gate signal will allow 12345 pulses to be passed on for counting and the display will read "345" kHz, the "12" part again "spilling out" left hand end.

A 1 microsecond gate signal will allow 012 pulses to be passed on for counting and the display will read "012" Hz.

However, it must be noted that due to an inherent error of  $\pm 1$  count in the right hand (or units) decade the readout may show 011, 012 or 013.

It is in this context that the provision of the previously mentioned option of a third timing pulse input to the control section can be appreciated. The actual circuitry of each decade is given in Fig. 6, whilst Fig. 9 gives component layout.

A 7490 divider is used to count. It passes on a pulse to the next decade for every 10th pulse received. The BCD equivalent of the input pulses counted are passed on to a 7475 quad latch. It is this device which stores the count

until commanded by the strobe pulse to pass the stored count on to the display. A 7447 is used to recode the BCD output from the 7475 to that required by the 3015F seven segment incandescent display.

These latter were chosen on the grounds of cost, the local price being of the order of \$2.50 each—considerably lower than the current price of the LED or other more elegant displays available.

One problem associated with the use of incandescent displays is the surge current when any segment is switched on. There is a slight danger that this initial surge current may cause failure of the associated drive section of the 7447. To overcome this problem, 47 ohm resistors are used to each segment input. Provision of these resistors will also increase the life of each segment of the display.

Another point worthy of mention is the wiring to the display section of each board. Since each "switch on" or "switch off" of each indicator segment will cause a current pulse on its supply wiring, it is worth while to keep the

indicator 5v. supply wiring independent of the logic 5v. supply right back to the power pack.

Provision has been made to do this (see both Figs. 6 and 10 where this separation of both positive and negative indicator supply rails is made clear).

### POWER SUPPLY

Fig. 14 gives the schematic of the power supply. A 9v. 3 amp. transformer feeds a bridge consisting of four MR751 (Motorola) diodes. These diodes are rated at 6 amps. each and the over-design may be open to criticism. The more readily available one amp. diodes are, however, too marginal in their capability since the counter draws just on 2 amps. at 5 volts.

However, four 2 amp. diodes would be perfectly adequate if to hand.

Output from the bridge is smoothed by two 2,200  $\mu$ F. 25 volt electrolytics. The smoothed d.c. is then applied to the paralleled inputs three LM309K (National) regulators. These regulators are rated at 1 amp. and are attached to the back of the instrument cabinet. Output of one LM309K is

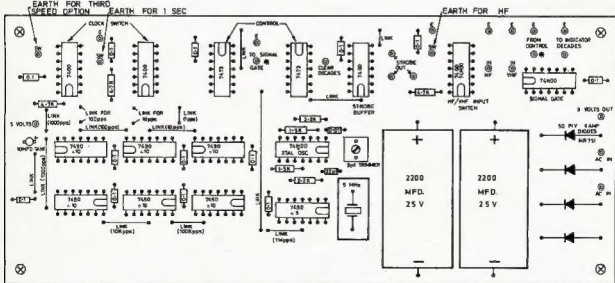


FIG. 11 CLOCK, CONTROL, POWER AND SWITCH LAYOUT







# Tasmania celebrates its GOLDEN JUBILEE

By the late Lon Jensen, B.Sc.,  
Dip. Elec., M.I.R.E.E. VK7LJ.

Mr A. Harold Masters, Architect, Electrician and Lecturer in Electrical Engineering at the Launceston Technical College is credited with being the first in Tasmania to demonstrate communication by means of Wireless Telegraphy. These experiments took place prior to 1900, probably in late 1898 or 1899. Later, in 1906 he carried out two-way experiments with H. M. S. Pioneer both in the Tamar River and along the northwest coast of Tasmania using Telefunken equipment obtained from Melbourne. There are few details available but apparently there was no two-way contact along the coast. Mr Masters' signals were, however, heard when the ship was near Devonport. Some of the frame wiring belonging to this equipment are being held for the Institute's Museum. They consist of copper braid wire netting attached to a metal cross about 2 feet across and were apparently connected horizontally one above the other.

The Tasmanian Division of the Wireless Institute of Australia was first established in Hobart slightly before June 1923 and a branch was formed in Launceston two months later in August. There is little documented evidence of the early years of the Division, but a receipt dated 18th June 1923, has been preserved and indicates that Mr J. C. Milne of Greta, VK7AG, was a member at that time and that Mr W. L. Scamler was secretary. Probably Mr. F. W. Medhurst, VK7AH, was President and Mr W. T. Watkins, VK7AA, the leading experimenter. In those days the Institute was regarded as being more of a nationwide association rather than a local one. Some strong dissension arose amongst some of the members and the Institute fell into disrepute. Local clubs then sprang up in the two centres - the Hobart Radio Experimenters' Club (later the Hobart Radio Research Club) in Hobart, and the Launceston Radio Experimenters' Club in Launceston.

In Hobart other active members of the M.I.R.E.E. were Messrs G. W. Lamson, T. Green, W. O. Duffy, H. Lovett 7HL, Giffman 7XA, L. R. Jensen 7LJ, K. Lester, F. Dockrider, C. Johnson 7ARE, Kirby, R. D. O'May 7JMA, G. Fraser, C. A. Walsh 7CW, R. Buring 7HB, J. Herne 7AK, W. E. Masters 7MM, W. Boufield, C. Harrison 7JH and many others whose names are not available.

In Launceston Mr W. B. McCabe 7AQ was Patron of L. R. E. C., Mr P. O. Fysh 7FP was President and Chairman, Mr C. Scott 7CS was Secretary, and Mr L. J. Crooks 7BQ was Treasurer. Other members were Messrs W. Turner, R. Reynolds, E. Ferris, R. Fernal, N. Gave 7BC, H. Graham, E. Scholnick 7BT, N. Symonds, A. Smith 7AB, W. Scamler 7LA, G. King, A. Flounders, L. A. Howe 7LA, R. S. Howe 7RS, A. S. Gill 7GS, J. Milne 7AL, M. Graver, Newton, Wolfe, E. E. Cooper 7MK, Phillips, and others.

A convention of the Wireless Institute of Australia was held in Perth in August 1923 at which all States were represented. The Tasmanian delegate was Mr. P. O. Fysh 7FP who stressed on his return the need for greater participation in the Institute's affairs by Tasmania. Accordingly a meeting was held in Launceston on the 3rd of September 1923 to discuss the re-organisation of the Tasmanian Division along the lines suggested at the Convention. As a result the Tasmanian Division was re-constituted with headquarters in Launceston. The Launceston Radio Experimenters' Club continued to function for another year but it gradually faded out in favour of the Institute which was incorporated in 1925 as a company under

The Companies Act 1920. The Hobart Radio Research Club continued to flourish in Hobart although most of the transmitting members were also members of the Institute. For some reason (possibly lack of willing members) the Headquarters were transferred suddenly to Hobart in June or July 1928. Pop Medhurst VK7AH became President and Lon Jensen VK7LJ Secretary/Treasurer. The Headquarters of the Division has remained in Hobart ever since.

The officers of the Division have changed over the years but many of the early members are still active. Presidents of the Division have been Messrs A. H. Masters (1925), W. Judd (1926), T. K. Jubb (1927), P. O. Fysh 7FP (1928), F. W. Medhurst VK7AH (1929-30-31-32-33), W. E. Masters VK7MM (1931-32), W. T. Hooker VK7JH (1933-34), A. E. Allen VK7PA (1935-36), end of war, L. R. Jensen VK7LJ (1945-49 and 1956), J. Brown VK7JL (1950), R. D. O'May VK7OM (1951-52), L. W. Edwards VK7LE (1953-54), F. J. Evans VK7JL (1955-56), G. Aschman VK7GA (1957), P. E. L. Dunne VK7PD (1958), T. A. Allen VK7AL (1959-61), T. Connor VK7CT (1962-63), G. D'Ellen VK7ZAS (1970-71), E. J. Cruise VK7CE (1972).

Secretaries were Messrs P. O. Fysh 7FP (1925-7), C. Scott 7CS (1928), L. R. Jensen VK7LJ (1929), C. Harrison VK7CH (1929-1932), R. Buring VK7RB (1932), H. M. Moorhouse (1933 until the end of the war), J. Brown VK7BJ (1943-48), R. D. O'May VK7OM (1949-50), L. W. Edwards VK7LE (1951), F. J. Evans VK7JL (1953-54), W. G. Tait (1954-55), M. Hursthouse VK7HM (1956), K. E. Milne VK7KA (1957-58), K. Spence VK7KS (1961-62), C. Russell Green VK7CR (1963), E. Beavard VK7EB (1967-68), I. Radie VK7ZIE (1969-70), M. L. Conway VK7CL (1971-72).

Patrons of the Division have been Messrs F. W. Medhurst VK7AH and L. J. Crooks. VK7BQ who is still patron. The accompanying photo shows this "grand old man" of radio in Launceston.

The group photograph taken in Dec 1972 shows six old timers all of whom are active on the air, many of them on CW. The dates show the date when first licensed.

Other old timers who are still active include R. M. Barrie VK7RM (ex VK6RM 1921), R. Conrad VK7CR 1930, F. E. Nicholls VK7NY (1932), L. F. Clark VK7LC (1933), N. Campbell VK7NC (1933), C. Wright VK7LZ (1933), D. H. Faber VK7AB (1934), T. Connor VK7CT (1971), M. L. Conway VK7CL (1971) etc.

(Continued on Page 20)

L. J. CROOKS, VK7BO  
Patron of the Tasmanian Division  
First licensed in 1925.

A group of VK7 Old Timers (with dates originally licensed) — left to right — back row, C. Harrison VK7CH (1927), J. Batchler VK7JB (1932), R. D. O'May VK7OM (1923), front row, C. A. Walsh VK7CW (1926), J. C. Milne VK7AG (1921), the late L. R. Jensen VK7LJ (1925)



Mr P. W. Medhurst "Pop", who was later VK7AH was an experimenter with 12 and 14" sparks coils in Hobart. On July 2nd 1901 Mr Medhurst and Mr Hallam, who were both members of the P.M.I.'s Department in Hobart were in contact by Mr H. M. S. Pioneer. The ship which was one of the ships accompanying the Duke of York on his visit to Australia to open the first Federal Parliament. A number of successful contacts were carried out with the ship both in the Derwent estuary and on the east coast of Tasmania. The greatest distance over which communication was carried out was about 60 miles. The vessel had previously been contacted by Mr H. M. S. Pioneer. (H.M.S. Pioneer) at the entrance to Port Phillip heads on 6th July 1901. These achievements are all the more noteworthy when it is remembered that they took place some six months before Marconi successfully spanned the Atlantic.

The Marconi Company erected stations at East Devonport, Tasmania and Queensland, Victoria, in 1904-5. The stations were opened for traffic on July 12th 1906 with the exchange of messages between the Prime Minister, Governors of the States and other dignitaries. It is probable however, that the first contact across Bass Strait took place during experiments conducted by the engineers late in 1905.

By 1913 there were about a dozen experimenters in Launceston and Hobart who were conducting experiments with spark equipment. The outbreak of war in 1914 put an end to the experiments until 1918. "Pop" Medhurst was still active and was assisted by Mr W. T. Watkins "Wally" who was given the call sign 7AA, and later still VK7DX. He was one of Tasmania's most successful experimenters in the early twenties and was the first to demonstrate telephony in Tasmania, in association with Mr H. G. Lewis in 1923. It was about this time that groups of enthusiasts began gathering together to discuss their experiments and equipment. These gatherings led to the formation of clubs in both Hobart and Launceston.





ABOVE: A working committee at the 1972 Federal Convention held in Melbourne, seriously ponders over matters concerning A.R. magazine.

From the left, Peter Dodd VK3CIF, Neil Penfold VK6NE, John Battick VK3OR, Don Miller VK2GN, Keith Roper VK3YC, and the Editor, Bill Roper VK3ARZ.

The 37th Annual Federal Convention will be held in Launceston later this month.



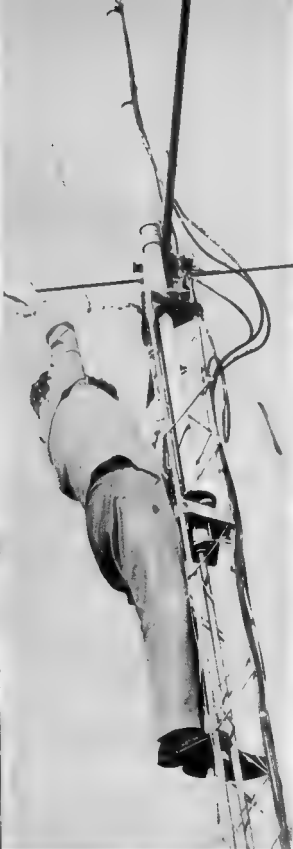
RIGHT: Just on 59 years ago the first two way contact was made across the Pacific using a wave-length of 250 metres.

This photograph by Norman Lusty, shows Max Howden, VK3BQ, sitting at the equipment he used in that historic contact.



OOPS! We nearly lost a Technical Editor.

Neither staff photographer Bob Dorin, who caught Bill in this precarious position, nor VK3ABP himself, will reveal how rescue was eventually effected.



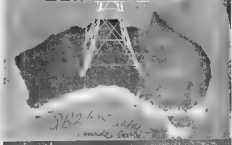
ABOVE: Have you "built a monster?"

Does it look like the monster belonging to Syd Molen, author of the award winning article "I've Built A Monster"?

BELOW: Despite apparent photographic evidence to the contrary, Amateur Radio was not being published 338 years ago.

Interesting to note that the price, size and front cover make-up have changed many times since 1935.

# AMATEUR RADIO





# A Special A.R. Report THE CUSTOMS SCENE

Over a period of time many articles, studies and arguments, are produced in relation to By-Law importation; this applies to many industries as well as the efforts of Amateur Radio. The subject has not been forgotten by any means, and is still very much alive in Executive circles. Much of what is going on is known but as this By-Law Concession is not always fully understood an outline of its practical meaning and what is required to obtain it is thought might be useful.

Firstly the Import Duty as specified in the Customs Tariff is the Rate of Duty applied by Act of Parliament. Import Duties are often used to protect an Australian Industry and the employment of people in and servicing that industry. Usually a very thorough investigation is made before applying a duty but once it is imposed it is most likely to stay as a protection for the industry involved. That is the pattern of the past, - right now an investigation on Electrical Equipment is being carried out.

Obviously the Tariff in the Guide is a large volume. It is Indexed and Numerated under what is termed "Brussels Nomenclature", a standardised form of presentation understandable here and overseas.

Obviously the index could not list every detail on Australian Imports so often a general heading covers many similar items and care has been exercised over the years to make it as concise, effective, and as accurate as possible, leaving little scope for doubt on the correct Duty to be paid. Some items are listed that are free of Duty - The Tariff Guide tells you this if so applicable.

Like Radio Operators the Customs Agent you may engage to help you or attend to paying

Duty on your imports holds a Customs Agents Licence for that work, he guards his reputation by avoiding errors. A double check occurs here as the Agent's Customs Entry Sheet is checked by the Customs Tariff Office when paying the Duty.

Now let us consider a hypothetically case of importing an article believing it is not of a type made in Australia but nevertheless a duty is applicable under an "all covering" item. Suppose the item is a Grand Piano - upright pianos are made in Australia and therefore a duty is applicable and the Tariff Guide makes no consideration for a different Rate of Duty on Grand Pianos which are NOT made in Australia. Here is where you think of By-Law Concession for a Duty Fee import. If the Grand is for a concert pianist of recognised fame one would believe an upright piano would scarcely be a "suitable substitute" so this is the type of situation where the Customs Department has officers who make decisions on such an application. These decisions are listed and available for public perusal. Decisions are not made without considerable thought. If an industry is affected by these decisions difficulty is encountered because the established industry is entitled to other protection granted it by Parliament. Now do not think it is only the decision of the By-Law Office that counts in obtaining a favourable decision - the importing applicant for By-Law is required to produce documentary evidence that the equal or suitable equivalents are not available from Australian sources. (This has not always been the case).

Having read this far you will realise it is not an easy procedure to obtain a By-Law Conces-

## THE QUESTION OF BY-LAW IMPORTS

soon unless it is done in detail and with much knowledge of what is involved. If you have a genuine case you would expect it to be granted. Hansard quotes in 1 year 21817 applications for By Law were received of which only 4445 were rejected or refused; these figures reveal the applications granted are far in excess of those refused.

Much detail has to accompany an application on the prescribed forms and these details are treated confidentially. No application is accepted if the Duty saving is less than \$100 per application.

Simplified, if by documents and correspondence you prove to the Department that there is no local manufacturer of an equivalent or suitable substitute you have every chance of favourable consideration. The evidence you submit which must be authentic to the best of your ability is the information needed. If there is anyone who can supply, and within reasonable time, that person has the right of protection which has been established by Act of Parliament.

The Institute as a corporate body expresses opinions on behalf of its members and does not engage in commerce. To those merchants or individual applicants it can lend its support and assist in requests - in fact it has done so and it still is negotiating to this end.

Advice has been received by the Institute that By-Law concessions are being granted. The details are on the lists published by the Customs and Excise Department.

If any favourable benefit from the work now being done by the Executive is made to Amateur Radio operators, you can be assured we will notify all members by the medium of A.R.

## H.F. S.S.B. TRANSCEIVERS . . . by Yaesu



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- **DC-200 DC-DC Converter** for 12 volt DC operation of FT-200. \$135.
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- **FTDX-401**, the BIG one, up to 400w P.E.P. output. A valve home station rig covering in full the bands 80-10 metres, with such refinements as noise blanker, cooling fan on P.A. compartment, sharp CW filter, clarifier, crystal calibrator 100 and 25 kHz, built-in 110-234v. AC P.S., VOX, switchable AGC, etc. Optional extras available include matching speaker, external VFO, de luxe PTT desk mic. A very elegant job. \$675.

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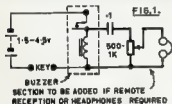
# NEWCOMER'S NOTEBOOK

With Rodney Champness,\* VK3UG

## LEARNING MORSE CODE, Part 2b. Audio Monitor Circuits.

To complete your sending equipment you will need a buzzer and battery, or preferably an audio oscillator. The buzzer/battery combination connected as shown on the left side of figure 1, is a reasonable sending arrangement. It cannot be considered the ultimate as the buzzer takes a reasonable time to start up and stop after application and removal of voltage to it.

The buzzer system can be improved by connecting the components on the right of figure 1.



The buzzer should then be placed in a cotton wool filled box to dampen the acoustic sound of the buzzer. High impedance headphones will be the best in this circuit but low impedance ones should also be satisfactory.

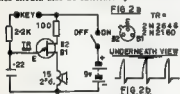
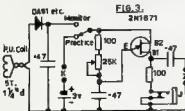


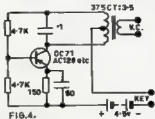
Figure 2a, shows a very simple oscillator using a unijunction transistor. If headphone reception is preferred a resistor of 15 to 22 ohms can be wired in place of the speaker and headphones can be connected across this resistor. If the level is too high a resistor in series with the phones will reduce the audio level. The value will be subject to experimentation and the impedance of the headphones used will have a large bearing on the value of this resistor. The value of the capacitor in the circuit can be altered to give the tone that suits best. This should be in the range 500 to 1500



K = PRACTICE KEY  
J = SHORT CIRCUITING JACK FOR L.O. Z PHONES OR LOUDSPEAKER.  
Z = HI. Z OUTPUT FOR PHONES OR RECORDING

Hx. Most CW operators use 800 to 1000 Hz. This circuit is not recommended if you want to tape record your sending. The waveform is similar to that in figure 2b, and some recorders have trouble reproducing this tone without audible unpleasant distortion.

Fig. 3. shows a similar circuit which will record better and can also be used as an on-air CW monitor. In this mode, a little RF is coupled via the pick-up coil by proximity to the transmitter tank coil and rectified. This DC is used to operate the oscillator whenever the transmitter is keyed. For phone operation simply switch to the practice oscillator position. Tone is governed by the 25K pot.



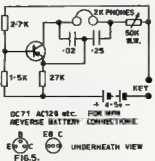
A slightly more complicated and expensive audio oscillator is shown in figure 4. This is a Hartley oscillator and its output more nearly resembles a sine wave than previous tone oscillators. The tone of this oscillator records quite well with no audible distortion. It will run quite well on voltages from 3 to 6 volts. NPN transistors can be used as long as the applied voltage and the electrolytic are reversed.

It was found that a 3.5 ohm speaker could not be placed across the 3.5 ohm winding of T1 as it loaded the oscillatory circuit too much. Speakers from about 8 ohms upwards should be satisfactory. It may depend on the particular transistor in use too. The value of R1 and R3 should be multiplied by up to 5 times in value if higher voltages than those specified are likely to be used, i.e. 12 volts. C1 and C2 can be varied to get a suitable quality sound output.

Finally in figure 5, is seen quite a novel tone oscillator. The headphones act as the inductance in the Colpitts circuit. This oscillator's waveform should also approximate that of a sine wave.

When sending or more particularly when receiving, headphones should be used to alleviate the distracting effect of room echos.

Next Month: Learning Morse Code, Part 2c. "Brass Pounding".



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Group of S.A.

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# Commercial Kinks

With Ron Fisher,\* VK3OM

## Modifications, good and bad.

After looking at numerous modifications on as many different types of equipment, I often wonder just what people have in mind when they start out. I guess that many actually start out to repair an actual fault, perhaps not even recognizing that a fault exists at all. So our friend sets out to improve the sensitivity, stability or what have you when in actual fact a simple repair would have done the trick. I am often amazed at the time and effort put into improving old receivers when in many cases the owner has no appreciation of how the set should work in any case.

The number one requirement therefore is to make sure that everything is reasonably up to the manufacturer's original specifications.

You might be quite surprised just how well the old set works with a few new capacitors and a general line up. If you have purchased a receiver or transceiver second-hand, try to locate someone in your area who has one of the same type and arrange to try them out side by side. Both of you might learn quite a bit.

With all this in mind, and if you are still determined to go ahead and modify old faithful then watch out for a few points.

You have of course made your mind just what is needed, but let's say it's a better RF stage. It always seems that receiver front ends are not sensitive enough. Perhaps the other fellows have better antennas, but let's not discourage our hero so soon.

Firstly, make a close study of the original layout and wiring. The manufacturer of your set has spent a lot of time and effort to make the stage stable and effective. When you start changing components, make sure that your new wiring looks just like the original. In fact I always believe that this is the one sign of a good modification. It should be well nigh impossible to differentiate. Next thing is to write down everything you have done, including of course, the new circuit. This serves several useful purposes. One, if you are successful, make a second copy and send it off to "Commercial Kinks". Two, it will remind you just what you have done in a few years time when a better circuit comes up. And three, last but by no means least, if you sell the set, the new owner will know just what you have done.

After all he might have different ideas to you. Don't forget that a well done modification with all the information included in the instruction book will definitely not reduce the resale price, but if you do a sloppy fashion with no information, then you cannot blame a prospective buyer from being a bit cautious.

If your modifications involve the use of additional controls, try to preserve the original panel lay-out as much as possible. One way to do this is to use existing control positions. For instance, the headphones socket on the Trio 9R59 receiver could be used as a mounting position for an IF gain control. The headphone socket can then easily be moved to the rear of the chassis. In the case of the original FT200 the dummy channel selector position is the ideal spot. Don't overlook the use of dual potentiometers in place of a single unit. It might be possible to combine the audio and RF controls. If it's good enough for Collins and Swan, it should be good enough for you.

The Eddystone "888A". A couple of months ago I had a few things to say about the product

detector on this receiver. Since then, I have had time to take a further look into the SSB capabilities of this receiver. After using it for a few weeks it became obvious that the AGC was not up to standard for sideband. The time constants were designed with AM reception in mind. An easy modification is to increase the value of R39 .47 megohm up to 2 megohms. This will increase the decay time of the AGC to about two seconds which enables you to use a much higher setting on the RF and if gain controls with strong signals. I also came across an odd fault in another 888A. The BFO could not be set on frequency. Even with the slug of the BFO coil right out, the frequency was too low. It was necessary to reduce the size of the BFO fixed padder C83 from its normal 200 pF to 150 pF. I can offer no explanation for this, as all components checked out OK and the IK was spot on frequency. That's all this month. Next time, some hints on repairing communication receivers. **EX**

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# NEW CALL SIGNS

OCT./NOV., 1972

- A.C.T.  
VK1CIS—S J Strickler, 62 Carroll Street, Hughes, 2605.  
VK1PM—R E W May, 25 Parkhill Street, Pugh, 2607.  
VK1ZIG—C A. Cohen, 25 Spafford Street, Holt, 2615.  
VK2017—R W Alder, 1000 Sturt Street, Canberra, 2601.  
VK2J4—W M Gelvin, 17 Maher Street, Hurstville, 2220.  
VK2KX—M Berry-Cotton, 35 Beasley Street, Ryde, 2112.  
VK2AA—R F Wootley, 8 Kipp Road, Potts, 2480.  
VK2BN—G N Brown, 141 Race Crescent, Katoona, 2512.  
VK2BIC—P W Richards, 1/11 East Crescent, McMahon, 2560.  
VK2BGR—P V Palph, 19 Morton Street, Wollomoolloo, 2865.  
VK2BRW—R W Brown, 314 West Street, Cross Ness, 2065.  
VK2BVB—J J Allcott, 1 Martin Street, Ryde, 2112.  
VK2EVT—A D Tully, 6 Belmont Street, Villawood, 2163.  
VK2ZKT—J E McInnis, Coraki Road, Dundurn, 2480.  
VK2ZKD—K J Davies, 15 Russell Avenue, Winston Hills, 2135.  
VK2ZPD—J C Sherkland, 8 Avalon Crescent, Birong, 2145.  
VK2ZPO—B Poppe, 4/123 Lilyfield Road, Leichhardt, 2040.  
VK2ZPR—H Pearson, 6 Whitehead Street, Kewston, 2062.  
VK2ZPS—P C B. Bradley, 8 Dangar Street, Lindfield, 2070.  
VK2ZTB—T N R. House, 4/11 Mianer Crescent, Wollomoolloo, 2865.  
VK2ZWT—A F Beard, 1068 Sydney Street, Wollumoolloo, 2868.  
VK2ZYY—C P Hughes, 61 Havelock Street, Ryde, 2112.  
VK2ZVZ—C Zorhila, 133 The Boulevard, Fairfield West, 2145.  
VICTORIA  
VK2AW—L J. Thord, 41 Rickard Road, Warrnam, 3205.  
VK2WAT—J J. Middleton, 38 Halsey Street, Ascot Vale, 3032.  
VK3AG—J Gann, 1 Plunkett Avenue, Ormond, 3204.  
VK3APL—J T Cunningham, 11 Catherine Parade, Frankston, 3199.  
VK3AN—A E Carlyle, 23 Owens Street, Doncaster, 3108.  
VK3RHL—R C J. Fowler, 2 Ford Street, McKinnon, 3204.  
VK3RHM—M M. Donadetti, 7 Caswell Place, Warrnam, 3205.  
VK3WCT—L W McCulloch, 19 Gap Road, Biddell, 3 Creek, 3431.  
VK3VH—G R. Hedley, 15 Strathgroy Road, Rosanna, 3084.  
VK3YHM—M A. Hedley, 17 Douglas Street, Rosanna, 3084.  
VK3VJ—G S. Eley, 11 York Street, Glen Waverley, 3160.  
VK3YJM—J M. Hodge, 372 Glenibry Street, East Melbourne, 3205.  
VK3ZAA—J P. Pendlebury, 15 Angus Street, Mont Albert, 3045.  
VK3ZCU—R. Muir, 27 McKelvey Street, Coleraine, 3301.  
VK3ZMN—D J. Marley, 22 Douglas Avenue, Swan Hill, 3580.  
VK3ZMT—M M. Bennett, 34 Arsons Road, Caulfield, 3161.  
VK3ZUB—G. O. Buxton, 28 Tuolumne Road, Diggers Rest, 3077.  
VK3ZUJ—J P. Chervin, 21 Prospect Street, Rosanna, 3084.  
VK3ZUD—M Webberley, 1 Lockertie Court, East St Albans, 3183.  
QUEENSLAND  
VK4YO—T W. Petersen, 77 Eglantine, Morven Island, 4209.  
VK4ED—M. Wright, Ocean View Station, Eagle Heights, 4209.  
VK4RD—R J. Ford, 121 Kawana Street, The Gap, 4061.  
VK4ZHM—R T. Moore, 6 Thomas Street, Wilton, 4051.  
SOUTH AUSTRALIA  
VK4JG—J. B. Hall, 16 Parkland Street, North Plympton, 5037.  
VK4YU—J. W. Hall, 64 Harmons Avenue, Hope Valley, 5900.  
VK4TH—N H E. Wells, 30 Farmer Street, Harrows, 5345.  
VK4VN—L. Muller, 52 Mitchell Street, Crystal Brook, 5023.  
VK4ZAB—R A. East, Blechley, via Strathgroy, 5250.  
VK4ZAN—R J. Crump, 4 Elizabeth Street, Tanunda, 5352.  
VK4ZAW—C W. Mainland, 10 St Albans Street, Torrak Gardens, 5085.  
VK4ZLD—K P. Thompson, 88 Santa Road, Salisbury Park, 5109.  
VK4ZSD—M W. Clegg, 6 Reynold Street, West Croydon, 5205.  
VK4ZML—M. Lee, 34 Berry Street, Whyalla, Station, 5603.  
VK4ZIM—M J. Stacey, 5 Back Top Road, Hillbina, 5112.  
WESTERN AUSTRALIA  
VK6GT—G B. Widmal, 120 Herbert Street, Douleville, 8118.  
VK6ZAZ—W A. Rhodes, 13 Tambourlay Way, Triggs, 6200.  
VK6ZBV—J E. McKenna, Flat 17, 55 Cape Street, Osborne Park, 6017.  
VK6ZB—K. Kelly, Flat 25, 25 Battle Street, Mosman Park, 6012.  
VK6RT—Cameron Amateur Radio Club, Post, C. W. A. P.O. Box 345, Camarvon, 5701, Station Trigg, Station, Bowen, 5700, Camarvon.  
VK6RTV—W A. VMP Group, Postal, 10 Mickey Street, Apperloo, 6151, Station, Channel 7 Transmitter, Bulky Bill, Southern Electronics Group, Postal, Blue Waters, Little Grove, Albany, 6330, Station, Randy Drive, Albany, 6330.  
TASMANIA  
VK7ZIM—D J. Malone, 30 Erina Street, Launceston, 7256.  
VK7ZJS—R J. Simpson, 14 Malleson Street, Somerset, 7322.

\*8 Fairview Ave., Glen Waverley, Vic. 3160



# VHF

an expanding world

With Eric Jamieson,\* VK5LP

Closing date for copy: 30th of month.  
Times: E.A.S.T.

## AMATEUR BAND BEACONS

VK0	52.160	VK0WJ Macquarie Island
VK2	51.160	VK0MA Mawson
VK0	42.450	VK0UJ
VK3	144.706	VK3UT, Vermont
VK4	144.825	VK4QZ Translink
VK5	92.600	VK5WJ2, Townsville
VK4	144.693	VK4WJ, Mt McEwelen
VK5	93.000	VK5VF Mt Liffy
VK4	144.800	VK5VF Mt Liffy
VK8	92.000	VK8VF VK8ST, Berkeley
	92.900	VK8TS VK8ST, Carnarvon
	144.500	VK8STW, Albany
	144.500	VK8VF VK8ST, A.H.
	144.800	VK8VF VK8ST, Devonport
VK7	92.900	VK8VF Darwin
ZL1	145.100	ZL1VHF Auckland
ZL2	145.200	ZL1VHF Wellington
	145.200	ZL1VHF Palmerston North
	145.150	ZL1VHF Palmerston North
	145.150	ZL1VHF Christchurch
	145.400	ZL1VHF Dunedin
JA	82.500	JA1GY Japan
HL	50.100	HL5WJ South Korea
	52.000	
KX8	90.110	KX8HK Marshall Islands
	50.100	

The beacon list this month carries a number of alterations, and all are of a modification kind, which results from information received from our air station folders as may be required for details for inclusion of accurate beacon information in the new Call Book. I wish to thank all those who co-operated by sending in information, one being only answering, even a telegram brought on results!

The various beacons are in the course of call sign changes and under the new call sign is known, all call signs will be included in the new Call Book. All call signs will be included in the new Call Book will include the additional information I have supplied for each beacon, who to whom, and the name of the station, date, power, antenna, location, etc. with the name of the custodian, should you wish to need a report of reception.

## VK0 ACTIVITY

An interest in the air to be heard from Phil, VK5FF, ex VK0FF of Casey, 197/172, in which he outlines information on his beacon operation in the VK0 region. Phil is QSL manager for VK0VW and was co-ordinator of the group that built the beacon for use on Macquarie Island. I can do no better therefore, than quote the relevant parts of Phil's letter.

"The VK0VW beacon has not operated since Dec 1972, and has not been on the air since March 1973. Tony Le Grip, the holder of the call sign, now lives in VK1."

The beacon at Macquarie Is. is VK0WJ on 52.160 MHz. This beacon was supplied and built by the S.I. Division of the U.S.A. to record time, use that 4 weeks from 10 to 10 and get on the air with 15 mW in noise to spare. It was swamped coming nature and only required improvement by Ron VK0WV, made it serviceable.

The first reported reception of the beacon was on the first day it was serviceable, the night of Saturday 9th Dec 1973, by VK5ANP and the first ever two-way VK0 to VK0 contact was on Sunday 10th December 1973 with VK5WV working VK0WJ, a 9 hour work on SSB. The updating lasted to 1970 and 28 stations in VK0 worked Ron, including VK2, 1 and 7. The VK0WJ beacon was on 1970 to 1973/74. At the time of writing VK0 had been heard but not worked.

Ron has failed to stop working on 98.15 and CW or 52.525 PM, Macquarie Is. is situated at 54° south, 159° east and about 300 miles south east of Hobart.

By the way, according to the Ionospheric Prediction Service, where beacon is, VK0VW, Casey, has not been on the air at 144.706 and 144.825 MHz. I can do no better than say: Many thanks for the interesting information Phil, and will be pleased to hear further from him at any time. Maybe Ron VK0WV would like to fill me in with VK0 information so far as 1973.

Ron VK4ZLL writes from Townsville with quite a lot of local news, and also mentions that at the time of writing in late February nothing of consequence had appeared in the way of signals from the south on 6 metres. Many of the Townsville VHF boys are taking part in WICEN activities which are held on the 1st Sunday and 3rd Thursday of each month on 6 metres. Joe Sander skeds starts at 0800 on 40 metres and 6 metres, and on Thursdays at 1030 on 80 metres and 6 metres. Interested stations are welcome to call. Suggest if anyone has a few spare minutes around those times they keep an ear to the ground, northern VK4 signals may well be available at times other than normal DX periods. Ron also advises that during the John Miley NYD several VK5 stations were heard on 6 metres but not worked.

\*Formerly, S.A. 8253

Amateur Radio, April, 1973

## THE MICE MOODS

On 18th February, 1971, at 2225 E.S.T. Ron VK5AKC was successful in contacting WAZNPA, on 128 MHz E.M.E. circuit, probably representing the first such QSO on this band from the Southern Hemisphere. WAZNPA gave VK5AKC a report of 330, and in the reverse direction WAZNPA was 550. As the contacts were separate 3 way contacts no record was claimed for this particular effort. Skeds were arranged for 3/4/72 and 3/9/72.

Equipment at VK5AKC consisted of a horn-fed 20 foot parabolic reflector fed from a pair of 3CX100A in parallel, receiver house here with 2 stages of RF amplification, one at the mast head, one at base. WAZNPA used a horn fed 60 foot parabolic reflector and two lots of 2CX100A in parallel, giving approx. 500 watts of 1286 MHz. SSB cable loss reduced this to about 200 watts at the dish.

Conspicuous in these pages for their efforts and we are glad to see an Australian at one end of the contact is a rather unfortunate, but the notes are going to be short this month. Little information has arrived from other places and I have been bothered down with a seriously ill father-in-law necessitating a 56 mile round trip to the Adelaide Hospital three times a week, hence very little opportunity of being around to gather information. Hope things will improve for next issue, in the meantime, Editor can make use of the space saved!

When Phil VK5FF wrote to me re the VK0 beacon he passed on word that he liked the thought for each month at the end of this column, and it seems quite a lot of others do too. Phil submits the following as a thought for this month: "Blessed are ye round in round in little circle - For they shall be called Bear Wheels."

The Voice in the Hills

A6

# VHF BAND USAGE QUESTIONAIRE

Your answers and views are required.

If you have not received a copy of the questionnaire please contact your local VHF Group or Radio Club.

Bulk supplies of questionnaires have been forwarded to each Division.

## Y.R.S.

With Bob Gauthierlet\*

A few weeks ago I listened to a conversation between two old timers, who swapped opinions on past days of amateur radio. They referred to UZ10's for transmitting, tank coils three inches in diameter, lead and aluminum strips in saline solution for rectification. How things have changed! Now we have integrated circuits, solid state trans and, semi-conductors, sophisticated transmitters, etc. etc.

However exciting and enlightening this may be, the fact is that the needs of youth haven't changed much and it is he that today young people have more time on their hands than ever before.

In January of this year I received a letter from K.J. Watson, VK2BLW, Founder of the Mustang Radio Club, a portion of which I quote: "The people who give the time to keep clubs going do so because it is helping youth" and he claims with this experience, my opinion the Y.R.C.S. is the greatest achievement to be organized.

Thanks O.M. for your letter. Communication is our business, and I would appreciate hearing from other club leaders, and especially from those amateurs who will offer a little time and know-how in the interests of those who will regard us (I hope) with affection as the "old timers" of yesterday.

Thank you to the State Supervisors who have extended to me the courtesy of answering my request for statistics, although my list is incomplete, and without it I may be dubbed a "selfish person."

\*Fed. Y.R.C.S. Co-ordinator, Methodist Mans, Kadina, S.A. 5554.

## "20 YEARS AGO"

With Ron Fisher, VK5OM

The thoughts expressed by Geoff Taylor in QSP of February last were not new. Back in April 1951, Federal Executive told the story of the Federal Councillor in the Editors for that month. Perhaps the concluding paragraph is worth repeating: "Get to know your Federal Council for better - give him work to do, request information at every opportunity - in other words, let him enjoy the status his position merits - let him earn his spurs." Perhaps things haven't changed over the years at all.

Back in 1951 the component manufacturers were in the process of changing over to the preferred value system of labelling resistors, capacitors and the like. It was a bit hard to remember to ask the dealer for a 470 ohm resistor after 20 years of asking for 500 ohm resistors, however we got used to it in the end with very little trouble. An article reprinted from Wireless World told the whole story of the change over in the April 1951 issue of Amateur Radio. Other technical articles included:

"Carrier control with Self biased Clamp Tube Modulator. This report from QST was followed by a practical example of such a modulator described by Gordon Brown VK5XU. Gordon used his type 2 mark II as the transmitter along with a 6M5 modulator driven with a carbon mic.

A.B.C. Converter for the S.W. receiver. Len Duncan VK5AX showed how you could tune into Blue Hills on your ham band receiver. Perhaps a good idea when your favourite band (amateur type) is flat. Chris Collinson VK7XW was at it again with his version of a Crystal Controlled Service Oscillator. This employed several crystals in give typical spots for the alignment of Broadcast receivers.

2 metres opens for VK5VKT contacts. VK5GR's column, FIF Megacycles and Above, reports this as the top news for VHF operations during the preceding month. VK5ABA was worked by VK7FF after a phone call got things under way. After this, contacts were made by VK's, 3BD, 1L2 and UGM. About the time there was quite a bit of activity on 578 MHz around the Sydney and Newcastle areas according to a report from VK5JH.

We all complain about rising prices, but this does not always apply. William Willis & Co. made a big discount of 300 cmt ribbons at 17d per yard. Present day price, about 6 cents per yard. Perhaps things are not as bad as we think!

A6

It is with very great pleasure that we reproduce here a photo of Air Chief Vce-Marshal Suwondo, VBOAT, Chairman of O.R.A.R.I. the Radio Amateurs' Society in Indonesia. VBOAT, is a keen amateur and is often heard on 20m SSB. (Photo courtesy Howard Alder, VK3VIZ)



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2-08	3/8	8	3	No. 3006	88c
2-16	3/8	16	3	No. 3007	88c
3-08	3/4	8	3	No. 3010	\$1.08
3-16	3/4	16	3	No. 3011	\$1.08
4-08	1	8	3	No. 3014	\$1.19
0-16	1	16	3	No. 3015	\$1.19
5-08	1 1/4	8	4	No. 3018	\$1.32
5-16	1 1/4	16	4	No. 3019	\$1.32
8-10	2	10	4	No. 3907	\$1.91

Special Antenna All-Band Tuner  
Inductance

(equivalent to B & W. No. 3907 7 inch)

7" length, 2" diam., 10 turns/inch,  
Price \$3.30

References: A R L Handbook 1981

"QST", March, 1959

"Amateur Radio", Dec 1959.

**WILLIAM WILLIS & CO.**  
PTY. LTD.

Manufacturers and Importers

77 CANTERBURY RD., CANTERBURY  
VIC, 3126 Phone 836-0707

## GO SOLID STATE

VHF Power Transistors, 30  
watts at 12.6 volts. Fantastic  
Offer to Amateurs, \$9.85.

These transistors, manufactured by  
Solid State Scientific, are exactly  
as currently being used by Australia's  
largest VHF mobile radio  
manufacturers. They are virtually  
indestructible (they withstand severe  
VSWR) and are guaranteed to give  
in excess of 30 watts at 144 MHz on  
12.6 volts (more at 12.5 volts)  
Supplied complete with data sheet,  
test, circuit and layout diagram

### FEATURES:

- Withstand severe VSWR
- Low inductance strip line package
- All leads electrically isolated from stud
- Greater than 4.4 dB power gain

TYPE 2N5591, 80.85 plus 50c p. & p.

### Driver Transistors Available

Complete with data sheet and suggested  
circuit and layout diagram

2N5590 (15 watts), \$7.75.

2N5558 (7 watts), \$6.50 p. & p. 50c

The complete set of three transistors  
are available as a special package  
offer for \$22.50 plus p. & p. 50c.

Data sheets available separately,

10c, plus 20c p. & p.

## AERIALS—Mobile Radio

Strongly made "Belling Lee" Whip  
Aerials for two-way radio use—do  
used by N.S.W. Police Force. Complete  
including cutting chart—require  
3/4" hole and are designed to mount  
from the top, i.e. no need to re-  
move roof lining, etc.

RMW60 fibreglass 48-78 MHz., \$9.30

RMW101 fibreglass 55-85 MHz., \$7.47

RMW15 stainless steel 55-88 MHz., \$8.75

RMW201 fibreglass 144-180 MHz., \$6.80

RMW25 stainless steel 144-180 MHz., \$6.25

### SPECIAL AERIALS & ACCESSORIES

RMW80L is a fibreglass bi-pin (3  
db) mobile aerial, 5/8" wavelength,  
complete with in-built base loading  
coil, 140-180 MHz operating range  
(cutting chart supplied), \$14.35.

CB27 is a fibreglass, centrally load-  
ed mobile aerial for 27 MHz mobile  
operation, only 36" long \$18.25.

K101 is a "knock down" adaptor for  
fitting of the above aerials—materials  
can be laid flat on roof (simple screw-  
in fitting), chromed \$5.95.

P & p on all aerials, 75c

## GRID DIP METER

MODEL TE16 (fully transistorised)

This versatile unit operates as a grid  
dip oscilloscope, an absorption wave-  
meter and an oscillating detector.  
Six plug-in coils are supplied with  
each unit covering the frequency  
range 300 kHz to 240 MHz. The  
unit is ruggedly constructed (full  
metal case) and also very light in  
weight. Supplied complete with  
earpiece, meter and full instruction  
manual. A must for all Amateurs.

### Specifications:

Transistors — 3 and 1

diode

Meter 500 uA F/S

Battery 9 volts PP3

Dimensions 180 x 80 x

40 mm

Weight 730 g

Frequency Range 440

kHz to 280 MHz with

six coils A coil 0.44-1.2 MHz.

B coil 1.34-4 MHz, C coil 4-14

MHz, D coil 14-40 MHz., E coil

40-140 MHz., F coil, 130-280 MHz.

Price \$34.50, p. & p. \$1.

## Co-ax Plugs & Sockets

1-9 10 up

PL259 UHF type line plug  
(for JMS7 or R0551)

co-ax } \$0.95 \$0.84

C32-276 UHF chassis

mounting socket } 0.95 0.84

B N C type line plug

(screw R0551) co-ax } 1.15 1.05

B N C type chassis

socket (female) } 1.00 1.40

Belling Lee L734/P line

plug } 0.45 0.40

Belling Lee L734/J line

socket } 0.50 0.45

Belling Lee LB64/S chassis

socket } 0.40 0.35

Belling Lee L616 "joinder" } 0.40 0.35

## DICK SMITH ELECTRONICS PTY. LTD.

182 PACIFIC HIGHWAY, GORE HILL, N.S.W., 2055

(Near Channel 2)

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### DEAR DICK

Please send me your Catalogue. I enclose 50c towards the cost plus 25c  
to cover p. & p., knowing that it contains special 50c discount vouchers

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ADDRESS \_\_\_\_\_

POSTCODE \_\_\_\_\_

Catalogue available at no charge to Organisations, Radio Clubs, Schools,  
etc., applying on Official Letterhead.



## INCREDIBLE NEW CATALOGUE—1973 Edition

We have sold over 7,000 copies of our catalogue to date.  
The greatly improved second edition is fast becoming the  
Amateur's reference book because of its pages of information  
prices, formulas, etc. We now include parameters on  
every transistor we sell thus making the job of finding  
equivalents much easier. Our instrument section is greatly  
enlarged and the catalogue now includes special sections on  
high quality McMurdo and Utilux Connectors

Grid Dip Oscillators, S.W.R. Meters, Amateur Information,  
Feet, etc. etc. We also include a pre-paid envelope and mail order form  
and can guarantee same day despatch of goods.  
Yes! We still include our popular 50c vouchers.



## CONTESTS

With Peter Brown,\* VK4PJ

Available space limits printing comments on our contests and information on a lot of other contests so don't think that your letters go unheeded. Just keep sending them along.

At this time February, the National Field Day returns are coming in at a greater rate than the Ross Hull so I am hopeful that we have gained substantially this year in the NFD.

Three of us had an excellent few hours down by the water under the gum trees, away from the city heat. Most VK4s seemed to go for the high spots. We seemed to hear more mobile/portable stations than for some years but the returns will tell the story. Although we heard other VK4s and VK6s stacking up the JA's we were not very successful DX-wise, nor did we hear many ZLs. A pleasing feature was the number of club stations.

May I suggest December 2nd for a VHF National Field Day when conditions will be so much better for VHF. There is no reason why Divisional Field Days should not coincide.

### CONTEST CALENDAR

April 1 W, A, B, LF phone  
7-8 SP DX CW  
8 W, A, B, LF CW  
21-22 Bermuda phone.  
28-29 P, A, C, C DX  
28-29 WAEDC RTTY.

May 5-6 Bermuda CW  
5-6 Helveta ZL

12-13 USSR CW, G.D.

Federal Contests Manager G.P.O. Box 638, Brisbane Queensland 4001

**NOTES ON THE ROSS HULL VHF CONTEST 1972-3**  
Congratulations to Kerry, VK3SU on another fine win and to Mike, VK3ASQ for his excellent 49 hour score.

Bob, VK3AOT as usual put up a sterling performance and if the VK4's knew up their efforts, first Ross Hull in some cases, I can see some winners among them in the near future.

Congratulations to two entrants who obtained new call signs during the contest.

I was disappointed that we have scarcely advanced since last year, 36 logs, but better representations in the open and CW sections ARE YOU AWARE THAT OVER 200 OPERATORS PARTICIPATED THIS YEAR?

Some operators with over 40 contacts did not return logs. What do I, or you, have to do to get logs returned?

Thanks for all the comments and suggestions which are appreciated and to which I will reply later. I am off on long service. The main thing is that so many enjoyed the contest.

(A)

\*Federal Contests Manager, Box 638, G.P.O., Brisbane, Qld. 4001

The Area Five Contest, 1973. 1st Feb. to 9th Sept. 1973. Frequency 40 and 80 metre bands only.

Operators must be in Area Five fixed portable or mobile. Numbers must be exchanged, being RS or RST plus three figures starting anywhere between 000 and 999 and increasing in sequence by one per contact, the reaching 999 reverts to 000. Score one point for each phone contact per day, for each band and two points when both stations are on CW.

Licensees. Any licensee may enter. Must log date-time and lat. and lon. of both stations. Score as for operation.

Logs must be in the hands of the Area Officer, P.O. Box 10, Mt. Gresham 2583 by the 24th Sept. 1973.

Prizes. Operators, \$15 and Certificate. Licensees, \$10 and Certificate.

Courtesy: Harry Cuthbert VK2AEK

# VK5SU DOES IT AGAIN!

## ROSS HULL VHF CONTEST 1972-73 RESULTS

**TROPHY WINNER**  
VK5SU—J. W. K. Adams  
**48-HOUR CERTIFICATE**  
VK3ASQ—M. R. Trickett

### Section (a)—Transmitting, Open

	7 Day	24 Hour	Contacts
VK1ZAD/JB	1032		95
2BHO	1256	355	127
3AOT	2428	1041	313
5SU	4225	1170	344
9BP	815	510	41

### Section (b)—Transmitting, Phone

VK2ZKK	1360	357	139
BMX	535	196	66
ZCT	330	114	107
HZ	—	161	17
ZZX	—	241	58
ZWP	291	—	52

### Check

VK3ASQ	2385	1291	240
2AZ	1150	465	78
ANP	960	275	126
AMK	880	347	130
BDL	716	265	123
ZYP/AUQ	712	228	170
ZYO	689	296	73
KK	556	238	66
YER	196	96	50
ZIM	8	4	8

VK4ZIS	2475	740	339
ZJH	2428	755	186
ZJM	2196	—	152
ZAI	1210	—	84
ZLC	556	—	113
ZTL	112	81	26

VK5ZWW	—	675	—
VK6PD	922	—	53
ZDY	457	262	45
ZFF	336	—	24
VK7KJ	1506	555	133
AX	—	201	188
VK8ZGF	1130	465	882

### Section (c)—Transmitting, CW

VK3KX	3	2	3
VK5MY	110	50	11

### Section (d)—Receiving, Open

VK3/13062—M. Batt	824 pts.
L20074—J. M. Hilliard	1105 pts.

FOR YOUR—

# YAESU MUSEN

## AMATEUR RADIO EQUIPMENT

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**PAPUA-NEW GUINEA**

Contact the Sole Territory Agents—

## SIDE BAND SERVICE

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Phones 2566, 3111

## OBITUARY

Lon Jensen, VK7LJ

It is my sad duty to inform you of the passing of my very dear friend, Lon Jensen, VK7LJ while he lay dying at Birlbey, on the East Coast with his wife on Saturday last 24th March.

Lon was one of the oldest VK Amateur on the air, his amateur licence no. 1825, and very active almost continuously since that time. He was a very proficient CW operator and will be remembered for his very fine fist. He was an untiring worker for the W. I. A. and will be greatly missed by his associates in Hahart, who found him always willing to help others with their problems. He was a Past President and Past Secretary of the Tasmanian W. I. A. branch. Lost to us is not only his wife Hilda, daughter Florence (Mrs. P. Day) and son Robert to whom condolences are extended in their bereavement.

VK7OM











## Magazine Index

With Syd Clark, VK3JSC

**"QV"**  
September, 1972: Slow Scanning Color; SSTV; Electronic Oscillator CR Tubes; CQ Reviews: The Yessu Menu FTD570 SSB/CW Transceiver; Is a Better to Receive Relatively and the Electronic Unwanted Signal IC's; An External VFO for the Heathkit SB-102 Transceiver; Voltage Independent Ramp Generator; Considerations for Solid State Linear VFO's.

**"QST"**  
November, 1972: Some tips on Successful QRP Operation; Aerials Types of Spiral Delay Line; Fundamentals of Solid-State Power-Amplifier Design; Part 2: The FVGT Box; RTTY A.F. Spectrum Analyzer; The Mini-Galaxy; Save the Ham-M; A Morse-Code Tone Identifier; A Code Practice Oscillator for the Beginner; The Y Match; A Register Identifier; Review of the Ten-Tec Argonaut 502.

**"RADIO COMMUNICATION"**  
September 1972 (Review copy supplied 28.11.72): Thoughts on a Multi-Mode Transmitter for Four Metres; Aerial Masts and Koushion Systems; Part 2: Simple recent Curve Traces; Serranin Aerials; Consumer Integrated Circuits in Amateur Design; October, 1972: Consumer Integrated Circuits in Amateur Design; P.L. Audio Power; An Audio Filter; The Puffermill; Using the 51-600 Series Integrated Circuits in Transmitters. Part 1.

**"POCKET PORTABLE PHONE DX"**  
September 1972: Using the Plessey SL-400 Series Integrated Circuits in Transmitters; P.L. Practical Bread Breakers Using Stock Materials; Cords, Capacitors and Benders.

**"SHORT WAVE MAGAZINE"**  
September 1972: 2L-Special Compressed for Ten Metres; Low Voltage 100 W. Straight RT Amplifier for Seventy-two; October 1972: Looking at the Yessu Menu FTD-401 and FT-DX-560 Transceivers (Text Report); VFO for Two Metres; Frequency Modulation; About Diode Product Detectors.

**"73 MAGAZINE"**  
September 1972: Construction of a Plessey SSTV Camera; WYVW 60 KHz. Frequency Compensator Receiver; Cigar Tube G6 Audio-R.F. Signal Generator; The C.W. Excavator; Antennas and Test Receivers for 1290, 2500 and 3500 MHz; Beken Up or Brian Down's Another Solid State Power Supply Article; IC Six Metre Receiver; A Tracking FM-AM Demodulator using an IC; Active Filter Design and Use; Part 2: A Modern VHF Frequency Counter; Frequency Synthesizer for 2M FM. Part 1.

**"BREAK-IN"**  
November 1972: A Totty Foot Tilt Over Tower; Transmitter Keying Circuit for CQET Teleprinter; Simple Two-Metre Proprietary; Fire Protection in the Ham Shack; The Q.R.M. Diminisher MK 2-45; How Much is Your Hobby Worth?

## TECHNICAL ARTICLES

Readers are requested to submit articles for publication in "A.R." in particular constructional articles, photographs of stations and gear, together with articles suitable for beginners, are required.

## A.R. Direct Subscriptions:

The Air Mail extra amount of \$1.50 per annum given in the Advertisements on Page 23 of September A.R. and subsequent issues refers to Air Mail to VK9. Air Mails elsewhere overseas vary in rate from 90 cents per copy downwards.

The W.J.A. still processes overseas magazines subscriptions. The rates are shown on Page 18

Send for lists to: W.J.A., P.O. Box 150, Toorak, Vic., 3142, or from you Division.

## HAMADS

- A free service for individual members.
- Four lines of print from 300 characters/spaces; full charge at \$5 (min.) per cent. inch. If exceeded or for repeats: includes name/address - use QTHR if correct in Call Book.
- Copy, please in typescript if possible, and signed.
- Excludes commercial-class advertising.
- Exceptions only by PRIOR arrangement.

## FOR SALE

Complete transmitting station in rack 10-10m 5-4-2m at 60w AM VFO on all bands. Includes power supply, modulator, relays, and all transmitters. What offers. J. S. Bland VK1JLJ, 20 Heydon St., Wadon, A.C.T. 2511. Ph. Bn. (022) 45 8011 x 25, Home (062) 85 2930.

3 Section commercial 1000, galvanised tower, complete external galvanised ladder and platform, all guys, etc. \$125. V3BCAL QTHR. Ph. (03) 4-4246.

Coaxial Cable equivalent PT11M PT25M double screen bursible PVP 30c and 30c yard VK4WR. P.O. Box 379, Nambour, 4560.

Sengano Electric Time Clock. Handy used. \$11.00 incl. postage. VK2AAV, P.O. Box C184, Clarence St., Sydney.

Yassu Type "P" sideband exciter, never used, \$35. VK3ZTA, D. J. Leiden, 2 Simon Ct., Mulgrave, 3170.

Trio 90-190 Comm. Rn. Good order. \$120. Offers wanted. Heath Monitor Scope, Morse Key PMG type. Bob Gutberlet, 1 Hay St., Kewdale, 6054. Ph. 31 005.

Cellas 75A2R2, double conversion, 80/40/30/15/10 Mx bands, AM and CW; superb Rx 140-145 MHz AM/FM, low out, as new cond., includes DC mobile PSU 8195, G. Scott, VK3ZIP, 30 Mitchell Rd., Mount Albert Nth., 3127. Ph. (03) 89 4645.

HAYQ Ast. 540. Honda 600 Watt 230v AC. Generator in good condition. \$195. VK3ZT QTHR. Ph. (03) 68 2867.

Collins Rx 7583. Mint condition, used as standby Rx only. \$385. VK1HJ. Ph. (052) 54 1369 or QTHR.

Galaxy III transceiver, excellent condition mech. and elec. with VOK and AC/PS/peak unit. \$260. Andrew Davis, 105/106 St. 60 3539 Bn. Houn, 32 Kalgoolie Cr., Fisher, A.C.T. 2511.

## WANTED

ARRR Receiver in working order. VK3ALE QTHR. Ph. (064) 741 698.

Viking II Transmitter AM. Not necessary to be working - but intact. No fancy prices. VK4LN QTHR. Ph. (071) 82 2875.

Vertical movement type "Bug" key. Commercial or homebrew. Partics. to A. Shewmith, VK4SS QTHR. Ph. (072) 44 6526.

## Tasmania celebrates its GOLDEN JUBILEE

(Continued from Page 9)

A number of members of the Division have been made Life Members for meritorious work in the Institute. These are Messrs. P. W. McDunn VK7AH (1925), P. O. Fysh VK7PF (1930), W. T. W. T. Watkins VK7DZ (1930), C. Harrison VK7HJ (1934), J. Brown VK7BA (1948), L. J. Cooke VK7BQ (1950), L. R. Jensen VK7LJ (1952), P. S. Dunne VK7PD (1955), R. D. O'May VK7OM (1956), T. Connor VK7CT (1960), T. A. Allen VK7TA (1960).

Members of the Institute in Tasmania have undertaken many outstanding acts of community service. Among these are the maintenance of emergency communications both intra-state and interstate following interruptions caused by floods and cable failures, provision of communication facilities at Reginas in the north and south of the state, etc. In the years up to the beginning of World War II, the Tasmanian amateurs provided many broadcast programmes on medium waves for the benefit of listeners all over the island. Among these were VK7CS, VK7BQ and VK7JH in Launceston, VK7CS, VK7CW, VK7PA, VK7LJ, and VK7CH in Hobart, VK7LJ and VK7BS in Burnie, VK7DH in Devonport and VK7JW in Longford.

Anniversary celebrations will be held in Hobart and Launceston to mark the occasion, and the Federal Convention of the W. I. A. will be held in Launceston this year. Also a "VK7 Golden Jubilee Award" has been organised for stations all over the world contacting Tasmanian amateurs.

## SILENT KEYS

It is with deep regret that we record the passing of:  
VK2RE—R. W. Edwards  
VK2AQX—R. Grivas  
VK2BWS—M. W. J. Sheldon  
L30176—C. J. Prior  
VK3PK—S. J. J. McIntosh  
L40105—L. G. Willett Sr.  
VK6HY—A. A. Cotton  
L60141—J. Dittman  
VK7LJ—L. R. Jensen

## QSP

(continued from Page 2)

## TV STANDARDS.

The South African Digest of 23rd February quotes two directors of a West German electronics company as stating that nowhere else in the world did manufacturers of TV sets take into account the stringency required by the South African Bureau of Standards. "South Africa is the only country, in our knowledge, which has compulsory specifications laid down for the manufacture of TV sets." As that country does not yet have a TV service perhaps the 25 stations might be spared much of the interference problems we have.

## VU-LAND 80 mX BAND.

The Indian Radio Amateur's of Oct '72 announces that their Ministry has allotted 3605-3708 KHz to VU Grade amateurs in addition to their existing 80 mX allocation of 3690-390 KHz.

## MAIL DELAYS.

Some publications posted in the U.S.A. on 8th November arrived on 18th February.

## RECEIPTS.

"Why do I not get a receipt when I pay my subscription to the Executive Office?" is a common complaint. The short answer is that receipts are not issued unless requested. This is in line with modern commercial practice. The other reason is that if a receipt had to be issued for every payment the Executive Office would need either more staff or more time. Both of these are in very short supply indeed.

## TOWER FOR A BEAM.

Page one of the American Telephone Engineer & Management which describes the TV tower cum TV centre at Oxtand in N.E. Mexico. This little monster weighs 150 tons and is 553 metres high which is near enough to 1740 feet. An intriguing detail is that the foundations are only 11 1/2 feet deep on a diameter of 230 feet. Could be a useful sky-hook for a repeater or maybe some mobile work from the restaurant at the 115 foot level.

## ITU PREFIX BLOCKS.

In the ITU latest listings, Australia has the blocks AXA-AXZ, VHA-VNZ and VZA-VZZ.

## AR POSTINGS.

"I am not sure if A.R. comes from Melbourne or the VK5 Division" writes a member in N.T. Yes OM, AR is posted in Melbourne - Chatterbox to be exact - in bulk bound and sent strictly in Post code order as required by the P.M.G. Dept. A.R.'s for the more distant states are posted first. Each month's posting of A.R. weighs about 700 lbs. and the postage bill is around five cents \$175.

Photograph of Thui Yansen, AB5Y with Karl Kozlik VK2BKW on his right and Syd McLean VK2GS on his left. Thui is in Sydney for some 30 months to study English before returning to Alhaur, and is staying in the North Sydney area, but can be contacted through VK2GS. Whilst he is away, Sharon will be kept on the map by A3PA. (Material by courtesy VK2GS).



## BOOKS OF INTEREST FOR AMATEUR OPERATORS

• DANISH—WORLD RADIO & TV HANDBOOK .....	\$5.95
• R.S.G.B.—AMATEUR RADIO TECHNIQUES, 4th Edition .....	\$6.05
• R.C.A.—SILICON CONTROLLED RECTIFIER, Experimenter's Manual .....	\$1.50
• DANISH—HOW TO LISTEN TO THE WORLD, 7th Edition .....	\$4.00
• SAMS—HOW TO READ SCHEMATIC DIAGRAMS .....	\$4.30
• NOLL—SOLID STATE Q.R.P. PROJECTS .....	\$5.15
• R.C.A.—LINEAR INTEGRATED CIRCUITS .....	\$3.75
• NOLL—73 VERTICAL, BEAM, AND TRIANGLE ANTENNAS .....	\$6.95
• G.E.—ELECTRONIC EXPERIMENTERS CIRCUIT MANUAL .....	\$4.00
• A.R.R.L.—UNDERSTANDING AMATEUR RADIO .....	\$4.35
• SAUNDERS—99 WAYS TO USE YOUR OSCILLOSCOPE .....	\$6.15

Add Postages: Local 35 cents, Interstate 65 cents

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Phones 60-1475-6-7



ACITRON TRANSMITTER TEST SET

### Functions Incorporated Are:

Power level checks, Standing wave ratio, Antenna selection, Two tone oscillator and a 50 Ohm load with Overload protector.

### Brief Specifications

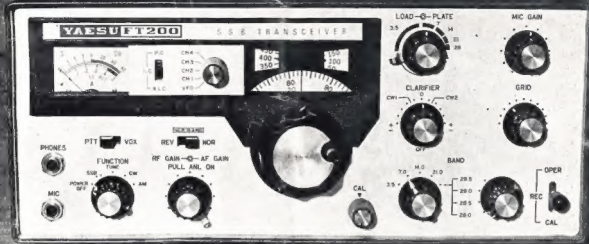
- \* 500 Watts Peak Power
- \* SWR to 5:1
- \* Two Tone approx. 1500-900 Hz
- \* Dummy Load 50 Ohms
- \* Tone Level out 3V P-P.

A.C.I. Electronics,  
310-324 Ferntree Gully Road,  
CLAYTON,  
VICTORIA. 3168.

**ACI**

**A.C.I. Electronics**





**ECONOMICAL SSB!**

*from YAESU*

## **FT-200 FIVE-BAND TRANSCEIVER**

A superb quality, low cost, versatile transceiver. Covers 80-10 mx, tuning range 500 Kc. each band. On 10 mx, crystal supplied for 28.5-29 Mc. (Crystals available optional extra for full 10 mx coverage.) SSB, CW, AM; with a speech peak input of 300w. Transistorised VFO, voltage regulator, and calibrator. 16 valves, 12 diodes, 6 transistors. PA two 6JS6A pentodes. ALC, AGC, ANL, PTT and VOX. Calibrated metering for PA cathode current, relative power output, and receiver S units. Offset tuning  $\pm 5$  Kc. Uses a 9 Mc. crystal filter with bandwidth of 2.3 Kc. at -6 db. Selectable sidebands, carrier suppression better than -40 db. Sideband suppression better than -50 db.

Provision for use of optional external VFO, FV-200. VFO includes fixed channel facility.

Operates from conservatively rated separate 230 volt 50 c.p.s. AC power supply, FP-200, which includes built-in speaker. A 12 volt DC power supply, DC-200, is also available. Transceiver incorporates power take-off and low level R.F. drive outlets suitable for transverters.

Latest model includes (1) provision for use of external VFO FV-200, and (2) factory installed key-click filter.

Cabinet finished in communication grey lacquer. Panel, etched, satin finish aluminium.

FT-200 Transceiver ..	.....	\$395
FP-200 AC Power Supply ..	.....	\$90
DC-200 DC Power Supply ..	.....	\$135
FV-200 External VFO ..	.....	\$115
M-200 Mobile Mount ....	.....	\$14

NOTE: Early model FT-200 owners, basic kit of parts available to enable modification for ext. VFO facility

Prices include S.T. Freight is extra. Prices and specs. subject to change.

All sets checked before despatch. After sales service, spares availability, warranty. All Yaesu sets sold by us are complete with plugs, power cables, English language instruction manuals, and three-core AC cable and 3-pin plug installed where applicable.

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South Aust. Rep.: FARMERS RADIO PTY. LTD., 257 Angus St., Adelaide, S.A., 5000. Telephone 23-1268  
Western Aust. Rep.: H. R. PRIDE, 26 Lockhart Street, Como, W.A., 6152. Telephone 60-4379